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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/976,412	10/12/2001	Creighton C. Kelly	5319	9945

7590 08/25/2006

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ART UNIT	PAPER NUMBER
1771	

DATE MAILED: 08/25/2006

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BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Application Number: 09/976,412
Filing Date: October 12, 2001
Appellant(s): KELLY ET AL.

Charlotte Wilson
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed June 12, 2006 appealing from the Office action mailed July 12, 2005.

(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings, which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

4,888,229	PALEY et al.	12-1989
4,938,817	LANGLEY	7-1990
6,189,189 B1	MORIN et al.	2-2001

6,139,954	DEAN et al.	10-2000
6,001,442	ROCKWEL, Jr.	12-1999

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

- **Claims 5-14, 19-31 and 37-38 are rejected under 35 U.S.C. 103(a) as being unpatentable over PALEY et al., LANGLEY and MORIN et al. and further in view of DEAN et al. (US 6,139,954).**

PALEY et al. discloses a wiper for reducing particulate contamination, which otherwise might result from the use of the wiper in controlled environment, such as that maintained in a clean room, the wiper being of the type constructed at least partially from a thermoplastic fabric material. The wiper provides a fused border in the material along the peripheral edges of the wiper and extends inwardly into the wiper. (Abstract) The reference discloses the use of materials such as polyester in the form of a knitted, woven or non-woven fabric. (Column 2, lines 50-57)

While PALEY et al. teaches a plurality of fused perimeter edges, it teaches a continuous fused border zone. It fails to teach the claimed discontinuous fused border zone with discrete fusion points formed by localized melt fusion and also fails to teach the use of a folded double layer border.

LANGLEY is related to seaming spunbonded synthetic fabrics and to the preparation of cleanroom garments. The reference solves the problem of contamination by microscopic fiber particles in cleanroom environments from cut edges or needle holes produced in stitching of seams of garments used in this environment and uses instead bonded seams that include folded-over edges. (Refer to Col. 1, lines 25-40) The reference teaches the use of ultrasonic energy

and pressure in predetermined spaced intervals by means such as an embossed wheel having spaced sets of serially arranged raised regions or lands. (Col. 2, lines 65-68 through Col. 3, lines 1-5) In Figure 1, the bonded area of the seam is in a discontinuous pattern.

PALEY et al. and LANGLEY fail to teach heat setting the textile fabric at a temperature of from 180 to 300 degrees Fahrenheit.

MORIN et al. discloses a method of manufacturing a polyester textile fabric having a relatively low level of particulate contaminated and high absorbency is provided by heat setting the fabric at a temperature of 300°F or less. (Abstract)

The reference teaches a method of manufacturing a textile fabric for use in a clean room having the steps of constructing a knitted or woven fabric from polyester yarn, heat setting the fabric at a temperature of from 180° to 300° F, and cutting the fabric to form the desired article; wherein the polyester fiber has not been heated above the temperature of 300°F. (Column 2, lines 10-14)

The reference also teaches that the wipers of their invention may be constructed from woven or knitted polyester fibers, preferably fibers of poly (ethylene terephthalate). It is also preferable to construct the fabrics from continuous filament, polyester yarn. Examples of useful yarns are those having a denier to filament ratio of from 0.1 to 10, a denier of 15 to 250 with filament counts ranging from 10 to 250. Typically, the fabrics used for clean room wipers have a weight of 1 to 9 ounces per square yard. (Column 2, lines 54-61) Further, the reference teaches that the geometric shape of the clean room wiper can be squared or any shape may be employed. (Column 3, lines 53-57) The MORIN et al. reference further teaches that the primary tests for contamination associated with clean room wipers are those measuring particles, unspecified

extractable matter, and individual ionic constituents. The amount of extractable contamination associated with a clean room wiper is determined by extracting the wiper and the organic and inorganic non-volatile residue may be further analyzed. (Column 4, lines 44-65) The reference further discloses that by following the process of their invention it is possible to reduce non-volatile residues to less than 0.005 grams/meters^2, and even less than 0.003 grams/meters^2 as measured by short-term extraction. (Column 7, lines 5-8)

Since the references are directed to cleanroom fabric products, the purpose disclosed by LANGLEY and MORIN et al. would have been recognized in the pertinent art of PALEY.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to modify the boundary edge of the wiper of PALEY and provide with a discontinuous pattern bonding and also with a folded double layer border with the motivation of solving the problem of contamination by microscopic fiber particles in cleanroom environments from cut edges as disclosed by LANGLEY. (Above)

Further, it would have been obvious at the time the invention was made to a person having ordinary skill in the art to modify the clean room wiper and provide it with a method of heat setting the fabric at a temperature of 300°F or less with the motivation of providing it with dimensional stability and to provide a polyester fabric with low particulate since it is believed that by heating the polyester above 300°F causes low molecular weight polymers or bloomers to blossom to the surface of the polyester fibers, where they crystallize into small particles as disclosed by MORIN et al. (Column 2, lines 16-20 and Column 3, line 28).

While MORIN et al. teaches the importance of having reduced non-volatile residues in a clean room wiper and also teaches the use of polyester yarns, and it could be presumed that

MORIN et al.'s invention would provide polyester that is substantially free of inorganic ionic additives in order to provide a wiper with reduced non-volatile residues (As disclosed above); the Examiner further relies herein in the teachings of DEAN et al. DEAN et al. teaches fiber made from polyesters used as binder fibers for nonwovens, textile and industrial yarns and fabrics. The polyester taught by DEAN et al. does not contain any antimony catalytic materials (Claim 11) and it teaches that these polymers are clear and non- opaque. (Column 3, lines 14-20).

Since it is known from the prior art that polyester is usually manufactured using metallic catalysts, usually compounds of antimony or aluminum, in finite amounts. And that also delusterants such as titanium dioxide are often applied to alter the appearance of the completed product. DEAN et al.'s polyester will equate to the claimed polyester with substantially free ionic additives.

Therefore, it would have been obvious at the time the invention was made to a person having ordinary skill in the art to modify the clean room wiper and provide it with a polyester that does not contain any antimony catalytic materials and that is clear and non-opaque with the motivation of avoiding having particles shed from polyester wipers that contain these metallic contaminants.

- **Claims 5-14 and 19-31 are rejected under 35 U.S.C. 103(a) as being unpatentable over PALEY et al. (US 4,888,229), ROCKWELL, Jr. (US 6,001,442) as stated in previous action and further in view of DEAN et al. (US 6,139,954).**

PALEY et al. discloses a wiper for reducing particulate contamination, which otherwise might result from the use of the wiper in controlled environment, such as that maintained in a clean room, the wiper being of the type constructed at least partially from a thermoplastic fabric

material. The wiper provides a fused border in the material along the peripheral edges of the wiper and extends inwardly into the wiper. (Abstract)

The reference discloses the use of materials such as polyester in the form of a knitted, woven or non-woven fabric. (Column 2, lines 50-57)

While PALEY et al. teaches a plurality of fused perimeter edges, it teaches a continuous fused border zone. It fails to teach the claimed discontinuous fused border zone with discrete fusion points formed by localized melt fusion.

ROCKWELL, Jr. discloses a roll tower made from cotton/polyester or polyester material and teaches the use of an ultrasonically bonded, boundary edge 12 disposed on the sides of the textile surface 14. The ultrasonically bonded, boundary edges 12 preferably have a discontinuous brick-like pattern. Such a discontinuous brick-like pattern is believed to provide exceptional flexibility. (Column 2, lines 9-24; Figure 1)

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to modify the wiper and provide it with discontinuous boundary edge (that is equated to the discontinuous fused zone of the present invention), with the motivation of providing the wiper of PALEY et al. with exceptional flexibility as disclosed by ROCKWELL, Jr. above.

However, the prior art cited is silent to the use of polyester free of inorganic additives.

DEAN et al. teaches fiber made from polyesters used as binder fibers for nonwovens, textile and industrial yarns and fabrics. The polyester taught by DEAN et al. does not contain any antimony catalytic materials (Claim 11) and it teaches that these polymers are clear and non-opaque. (Column 3, lines 14-20).

Since it is known from the prior art that polyester is usually manufactured using metallic catalysts, usually compounds of antimony or aluminum, in finite amounts. And that also delusterants such as titanium dioxide are often applied to alter the appearance of the completed product. DEAN et al.'s polyester will equate to the claimed polyester with substantially free ionic additives.

Therefore, it would have been obvious at the time the invention was made to a person having ordinary skill in the art to modify the cleanroom wiper and provide it with a polyester that does not contain any antimony catalytic materials and that is clear and non-opaque with the motivation of avoiding having particles shed from polyester wipers that contain these metallic contaminants.

- **Claims 37-38 are rejected under 35 U.S.C. 103(a) as being unpatentable over PALEY et al. (US 4,888,229), ROCKWELL, Jr. (US 6,001,442) and DEAN et al. (US 6,139,954) as applied above, and further in view of MORIN et al. (US 6,189,189).**

The prior art fails to teach heat setting the textile fabric at a temperature of from 180 to 300 degrees Fahrenheit.

MORIN et al. discloses a method of manufacturing a polyester textile fabric having a relatively low level of particulate contaminated and high absorbency is provided by heat setting the fabric at a temperature of 300°F or less. (Abstract)

The reference teaches a method of manufacturing a textile fabric for use in a clean room having the steps of constructing a knitted or woven fabric from polyester yarn, heat setting the fabric at a temperature of from 180° to 300° F, and cutting the fabric to form the desired article; wherein the polyester fiber has not been heated above the temperature of 300°F. (Column 2, lines 10-14)

The reference also teaches that the wipers of their invention may be constructed from woven or knitted polyester fibers, preferably fibers of poly (ethylene terephthalate). It is also preferable to construct the fabrics from continuous filament, polyester yarn. Examples of useful yarns are those having a denier to filament ratio of from 0.1 to 10, a denier of 15 to 250 with filament counts ranging from 10 to 250. Typically, the fabrics used for clean room wipers have a weight of 1 to 9 ounces per square yard. (Column 2, lines 54-61) Further, the reference teaches that the geometric shape of the clean room wiper can be squared or any shape may be employed. (Column 3, lines 53-57)

The MORIN et al. reference further teaches that the primary tests for contamination associated with clean room wipers are those measuring particles, unspecified extractable matter, and individual ionic constituents. The amount of extractable contamination associated with a clean room wiper is determined by extracting the wiper and the organic and inorganic non-volatile residue may be further analyzed. (Column 4, lines 44-65) The reference further discloses that by following the process of their invention it is possible to reduce non-volatile residues to less than 0.005 grams/meters^2, and even less than 0.003 grams/meters^2 as measured by short-term extraction. (Column 7, lines 5-8)

Since MORIN et al. teaches the importance of having reduced non-volatile residues in a clean room wiper and also teaches the use of polyester yarns, it is reasonable to presume that MORIN et al.'s invention would provide polyester that is substantially free of inorganic ionic additives in order to provide a wiper with reduced non-volatile residues. (As disclosed above)

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to modify the clean room wiper and provide it with a method of heat

setting the fabric at a temperature of 300°F or less with the motivation of providing it with dimensional stability and to provide a polyester fabric with low particulate since it is believed that by heating the polyester above 300°F causes low molecular weight polymers or bloomers to blossom to the surface of the polyester fibers, where they crystallize into small particles as disclosed by MORIN et al. (Column 2, lines 16-20 and Column 3, line 28).

(10) Response to Argument

- Appellants argue that the primary reference of PALEY teaches away from a discontinuous fused border zone with discrete fusion points formed by localized melt fusion. Appellants refer to Col. 3, lines 13-19 to support their conclusion. Appellants further argue that LANGLEY fails to teach the production of cleanrooms wipers.

It is noted that PALEY teaches away from limiting the fusing of segments 26 in a fabric when cutting by a hot knife or a hot wire as they show that the localized melting of the segments (at the edge) is insufficient to prevent these segments 26 from release when subjected to agitation and other manipulations common in the use of the wiper. To solve that problem, PALEY provides a fused border 32 that extends inwardly into the wiper, away from the peripheral edges 34. (Refer to Col. 3, lines 29-37) It is noted that the "localized melt fusion" described by PALEY above is limited to the cut edges of a fabric by using a hot knife or a hot wire. The reference provides the teaching of a fused border zone disposed inboard, but it is continuous versus the claimed discontinuous fused border zones.

While PALEY solves the problem of particulate contamination by using continuous fused edges, LANGLEY teaches the use of discontinuous pattern bonding and also the use of a folded double layer border to also solve the problem of contamination by microscopic fiber particles in

cleanroom environments from cut edges. These two configurations are art-recognized equivalents at the time the invention was made. One of ordinary skill in the art would have found it obvious to substitute a continuous bonding border for a discontinuous pattern bonding and/or a folded double layer border, further because a discontinuous pattern bonding would provide a more flexible wiper product. It is noted that the construction of LANGLEY relates to cleanroom and protective garments that avoid release of microscopic particles. It is the Examiner's position that the scope of the construction of LANGLEY is relevant to the construction of low contaminant wipers for use in cleanrooms.

While PALEY teaches using polyester in their wiper, it is silent to the use of polyester filaments that are substantially free of inorganic ionic additives. MORIN teaches a polyester fabric with low particle contamination that could be used in cleanroom wipers, the reference teaches heat setting the material at 300°F or less and teaches the importance of having reduced non-volatile residues. Appellants argue that MORIN fails to teach the use of a discontinuous fused border. It is the Examiner's position that the teaching of a discontinuous fused border is provided by the LANGLEY reference and MORIN provides the teachings of using polyesters having reduced non-volatile residues that the Examiner interprets to equate to the claimed substantially free inorganic ionic additives. The Examiner further relies on DEAN et al. that teach fiber made from polyesters that do not contain any antimony catalytic materials (Claim 11) and it teaches that these polymers are clear and non- opaque. (Column 3, lines 14-20). It is further noted that polyester is usually manufactured using metallic catalysts, usually compounds of antimony or aluminum, in finite amounts. And that also delusterants such as titanium dioxide are often applied to alter the appearance of the completed product. Therefore, polyester

produced in the manner taught by MORIN and DEAN et al.'s will equate to the claimed polyester with substantially free ionic additives.

With regards to Appellant's arguments indication that the polyester fibers of the present invention are different from those used by DEAN because the present disclosure specifies that "the wipers of the present invention are formed from polymeric fibers incorporating very low levels of inorganic additives... Such fiber is substantially free of titanium dioxide (TiO_2) or other metal-based opacifying agents..." (Page 14, lines 10-14). It is noted that the claims as written are not limiting inorganic additives to titanium dioxide or other metal-based opacifying agents. Even if it did, it is noted that the DEAN teaching of using polymers that are clear and non-opaque, could be interpreted as not having opacifying agents.

- Appellants argue that the ROCKWELL reference is directed to a polyester roll towel for use, typically, in public restroom facilities and that Appellant's field of endeavor is wiping cloths that meet substantially all of the specifications for use in cleanrooms.

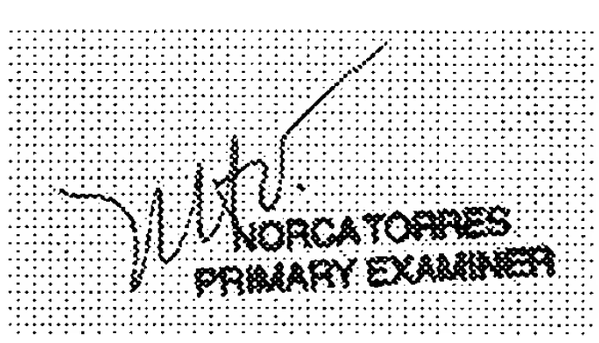
  It is noted that the Examiner is not bodily incorporating the structure of ROCKWELL into PALEY, but providing motivation to use a discontinuous brick-like pattern fused border versus a continuous fused border as it will provide a more flexible wiper. While ROCKWELL is directed to applications for public restroom facilities, the concept of providing a discontinuous border as an alternative to a continuous border would be recognized in the art of wipers as it will provide a material with less stiffness (more flexible), regardless of the intended use of the wiper.

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,



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